

Flight Scientist Report  
Thursday 5/13/2021 ACTIVATE RF62

Flight Type: Statistical Survey Flight

Flight Route: ATLIC ZIBUT 3672N 3770N 3672N ZIBUT ATLIC

Special Notes: First joint flight of summer 2021 campaign and first flight with full payload on Falcon since early in the winter 2021 campaign

### **King Air**

Pilot report (Sandeen): Dual aircraft research flight with the HU25. Planned route was ATLIC ZIBUT 3672N 3770N 3672N ZIBUT ATLIC. UC12 Crew3 was Jamison, Sandeen, Shingler, Harper. Researchers had to troubleshoot instrumentation initially, but stated no sustained faults or issues. Significant winds at altitude (247/120) which resulted in large separations between the UC-12 and HU-25. Significant winds also led to UC-12 cutting off last portion of the final leg to conserve fuel (turned around 30 nm early. 4 sondes dropped. No issues with aircraft, ready for next sortie.

3.7 hour flight

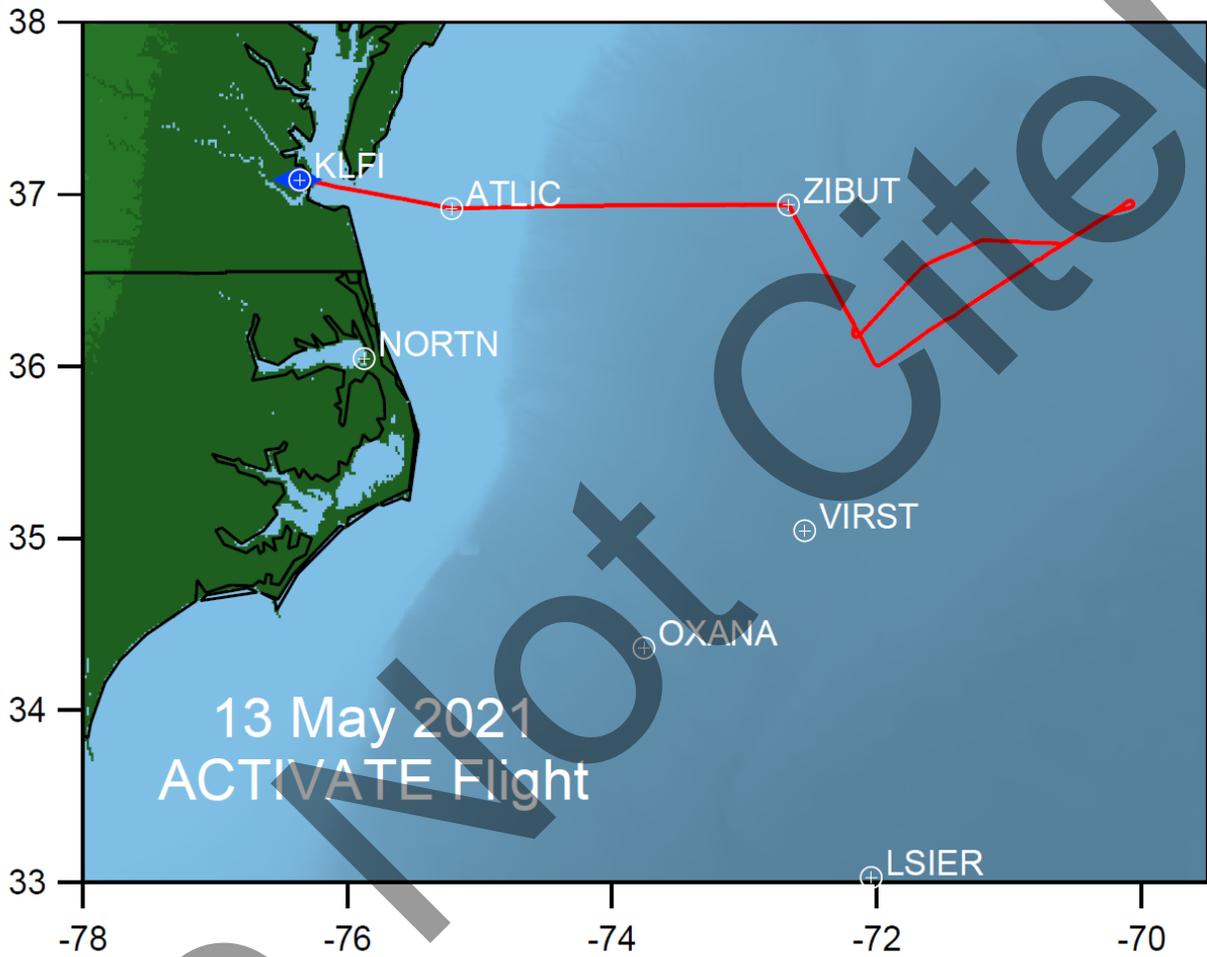
Flight scientist report (Shingler):

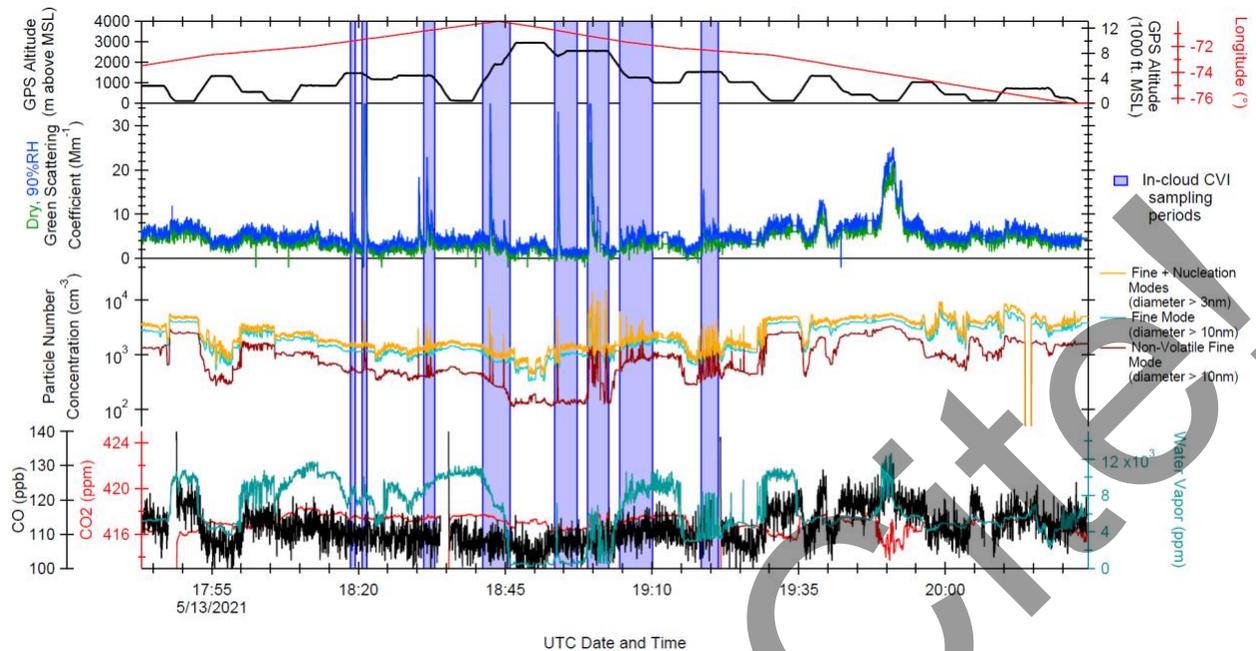
The UC12 took off behind the HU25 but overtook them on the way out to ZIBUT where we encountered mostly clean air without clouds until reaching the second waypoint (3672N). UC12 encountered cirrus at altitude (RSP shutter was closed for a few minutes) and descended to FL270 to stay under the cirrus. There was a lower scattered cumulus cloud layer along this southeastern leg with cirrus above the aircraft. A total of 4 sondes were dropped (*in order*: ZIBUT (outbound), farthest East turnaround point, 3672N (inbound), near coast). HSRL-2 had minor software issues on takeoff but were rectified before ZIBUT. RSP and AVAPS had no issues.

### **Falcon**

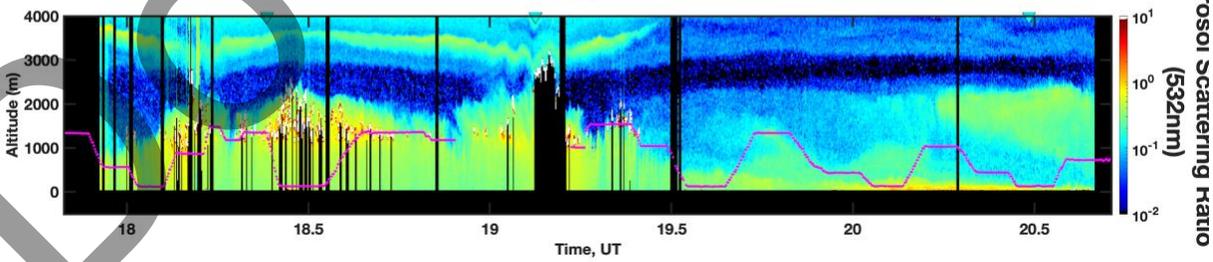
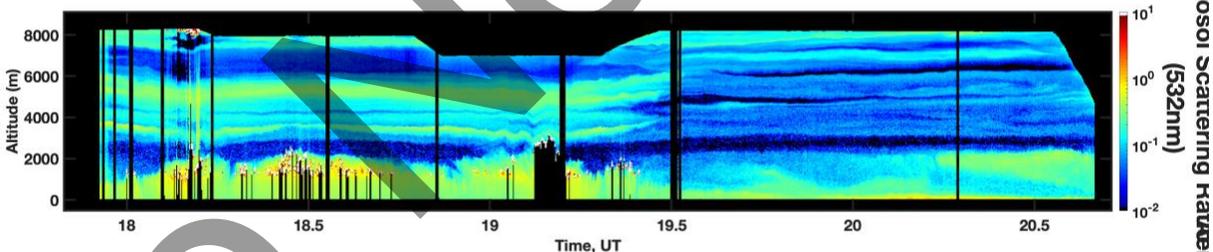
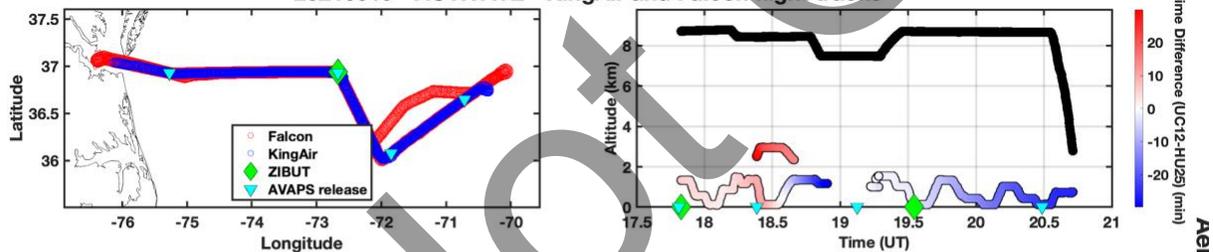
Pilot report ():

Flight scientist report (Crosbie): Totally clear on the way out to ZIBUT conducted CLEAR modules. MBL was very low (around or below 500ft) some evidence of aerosol vertical gradients above but not a significant amount. Major transition happened across the SST gradient. Well-developed cloud line near the edge of the cloudy region. UC12 turned early because of the strong upper level winds so near the far turn we made a slight detour to capture a better cloud line since we had climbed to ~10kft to get clear of the clouds at the turn and down track it had returned to shCu. Cloud water collected in tops and in the precip near the cloud edge region. (6 clear, 1 full cloudy, 1 part cloudy)





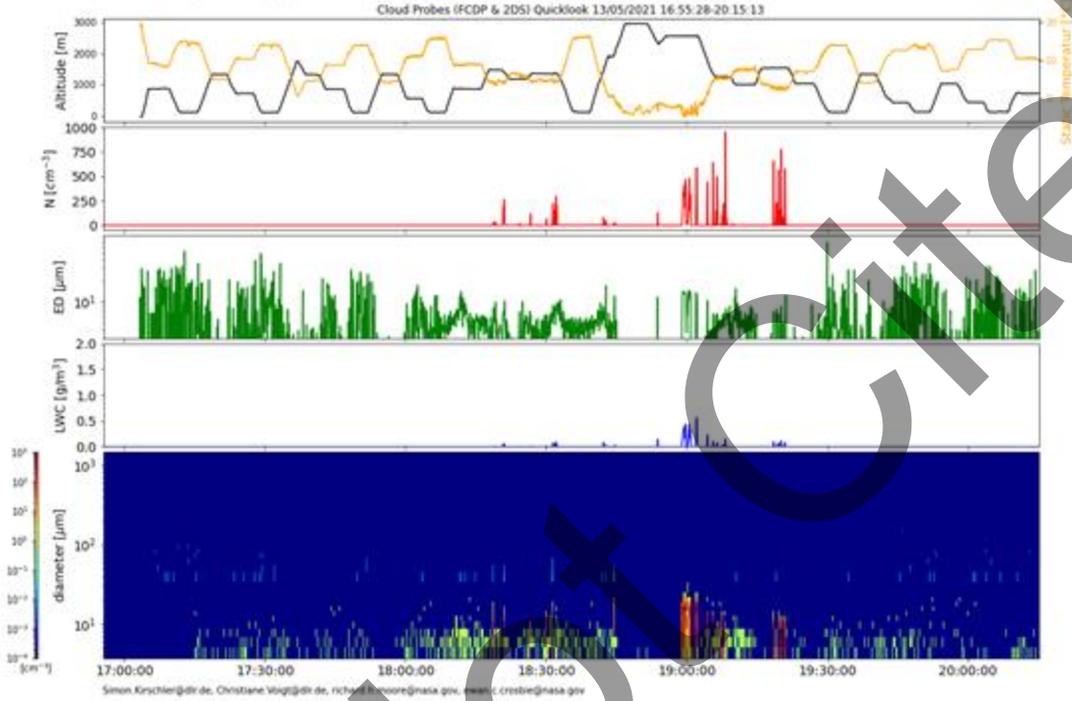
20210513 - ACTIVATE - KingAir and Falcon flight tracks



Note from Marta: The HSRL-2 lidar data image actually starts shortly after the first dropsonde was launched at ZIBUT. Therefore, it is not marked on the bottom panel. It is, however, marked on the two graphs in the uppermost tier.

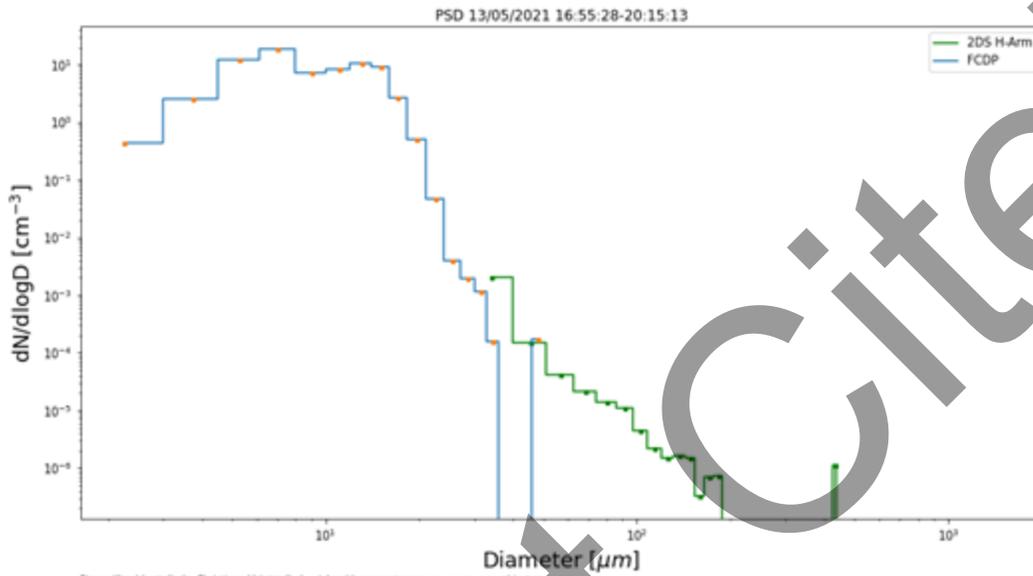
# Quicklook ACTIVATE Cloud Probes (FCDP & 2DS) Quicklook

preliminary data, only for quicklook use  
Simon Kirschler, Christiane Voigt, Richard Moore, Ewan Crosbie



# PSD ACTIVATE

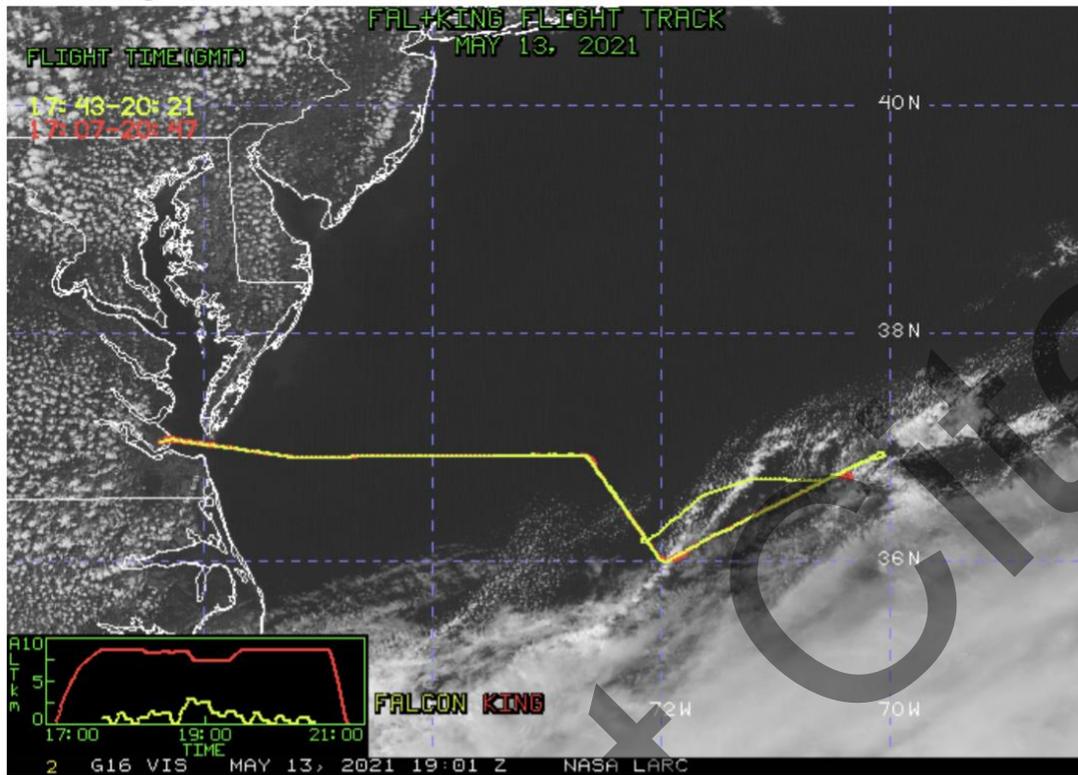
preliminary data, only for quicklook use  
Simon Kirschler, Christiane Voigt, Richard Moore, Ewan Crosbie



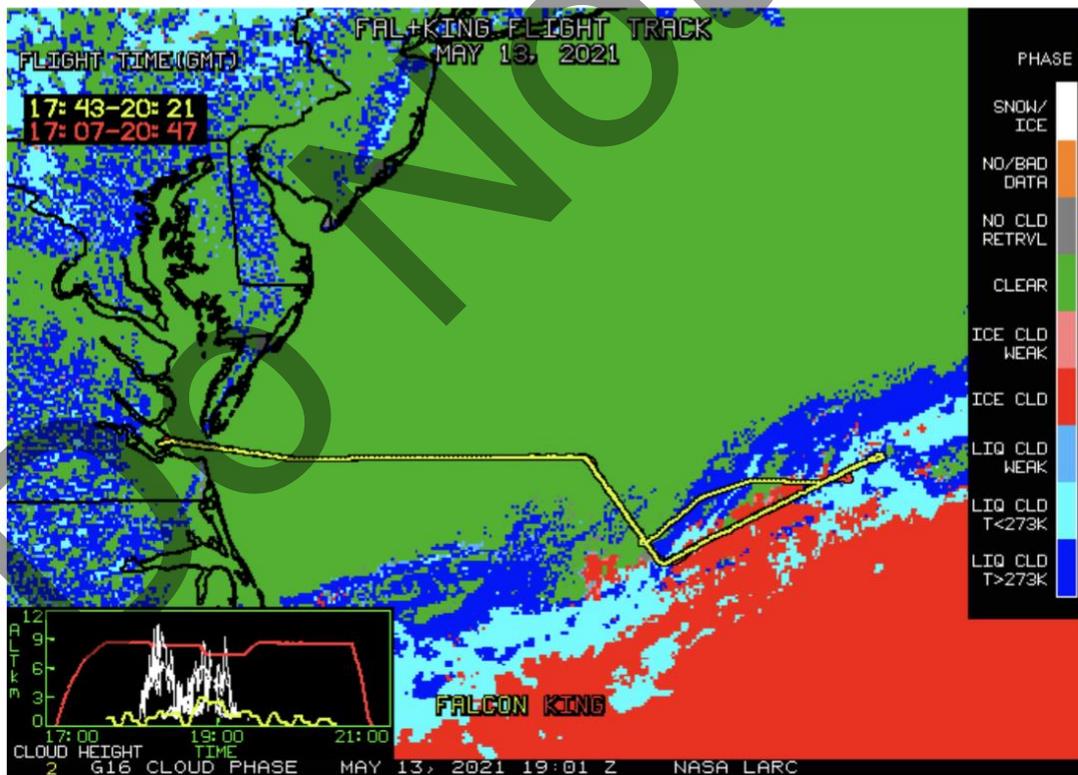
Only shallow cloud without precipitation mode.

NASA-LaRC Clouds Group GOES-16 Quicklook Images for Flight 62, 19:01 UTC May 13, 2021

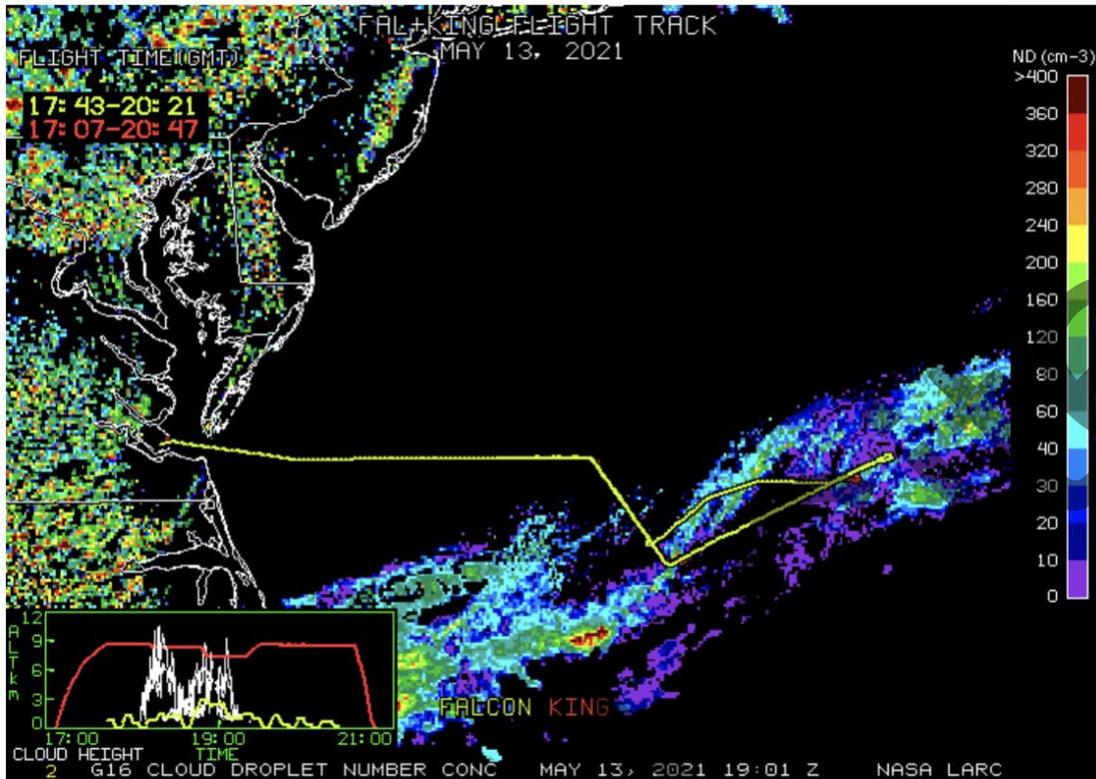
Visible Image



Cloud Phase



### Cloud Droplet Number Concentration (cm-3)



### Cloud-Top Height (Kft-ASL)

